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SPECIFICATION FOR CELLULOSIC PAPERS FOR ELECTRICAL PURPOSES

PART 3 SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 4 Electrolytic Capacitor Paper

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Section 4 Electrolytic Capacitor Paper

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SPECIFICATION FOR CELLULOSIC PAPERS FOR ELECTRICAL PURPOSES

PART 3 SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 4 Electrolytic Capacitor Paper

0. FOREWORD

0.1 This Indian Standard (Part 3/Sec 4) was adopted by the Indian Standards Institution on 27 September 1984, after the draft finalized by the Solid Electrical Insulating Materials Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard (Part 3/Sec 4) is one of the series of Indian Standards which deals with cellulosic papers for electrical purposes. This series has the following three parts:

Part 1 Definitions and general requirements,

Part 2 Methods of test, and

Part 3 Specifications for individual materials.

0.3 This standard (Part 3/Sec 4) covers the requirements of electrolytic capacitor paper.

0.4 In the preparation of this standard, assistance has been derived from IEC Publication 554-3-4 (1979) Specification for cellulosic papers for electrical purposes, Part III Specifications for individual materials, Sheet 4 Electrolytic capacitor paper, issued by the International Electrotechnical Commission (IEC).

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in the standard.

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*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard (Part 3/Sec 4) covers the requirements of electrolytic capacitor paper.

2. TYPES

2.1 The following types of electrolytic capacitor papers as given in Table 1 of IS : 9335 (Part 1)-1979* are covered by this specification:

Symbol	*Description*
4.1	Absorbent separator paper, long fibres
4.2	Absorbent separator paper, short fibres
4.3	Non-absorbent paper

3. TERMINOLOGY

3.0 For the purpose of this standard the definitions as given in IS : 9335 (Part 1)-1979* shall apply.

4. GENERAL REQUIREMENTS

4.1 General — The materials shall conform to the requirements stated in IS : 9335 (Part 1)-1979*.

5. PERFORMANCE REQUIREMENTS

5.1 The performance requirements when tested according to the relevant method shall conform to the requirements given in Table 1.

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*Specification for cellulosic papers for electrical purposes : Part 1 Definitions and general requirements.

TABLE 1 REQUIREMENTS FOR CLASS 4 ELECTROLYTIC CAPACITOR PAPER

(*Clause* 5.1)

SL No.	PROPERTY	TYPE	REQUIREMENTS	TEST METHOD [REFERENCE TO CLAUSE NO. AS GIVEN IN IS : 9335 (PART 2)-1979*]	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)
i)	Thickness, µm	all	Tolerance ± 10 percent	3	The thickness shall be determined in accordance with IS : 1060 (Part 1)-1966† except that 10 sheets of paper shall be used. For narrow width materials the measurements shall be made at approximately equal intervals along the central line
ii)	Apparent density, g/cm³		Tolerance	5	
		4.1	± 10 percent		
		4.2	± 10 percent		
		4.3	± 0·05 g/cm³		
iii)	Moisture content, percent	all	8 (maximum)	11	
iv)	Ash, percent	all	0·35 (maximum) except for Manilla based absorbent papers, where 0·55 (maximum) is permitted	12	
v)	Conductivity of aqueous extract, mS/m	all	3 maximum (30 µS/Cm)	13	
vi)	Chloride content of aqueous extract, ppm	all	5 (maximum)	15	The test shall be carried out in accordance with the requirements of Method 1 of clause 15 of IS : 9335 (Part 2)-1979*
vii)	pH of aqueous extract	all	6·0 to 7·5	14	
viii)	Resistance ratio		Under consideration		
ix)	Water absorption, mm (Klemm method)	all	Type 4·2 values not less than those given below:	20	Specimen of narrow width materials in the cross direction shall be of sufficient length to allow them to be dipped at least 6 mm in the water and to allow sufficient water rise The preferred method is by means of a cathetometer using a rectangular container to minimize aberration effects.

Nominal Thickness (µm)	Machine Direction Apparent Density (g/cm³)				Cross Direction Apparent Density (g/cm³)			
	0·55	0·50	0·45	0·40	0·55	0·50	0·45	0·40
30	7	11	13	15	5	8	10	11
45	11	18	26	33	8	14	20	25
60	15	26	38	50	11	20	29	38
75	19	33	48	62	14	25	36	47
90	23	40	56	71	17	30	42	53

Type 4.3 — Not applicable.

Type 4.1 — Under consideration.

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*Specification for cellulose papers for electrical purposes: Part 2 Methods of test.

†Methods of sampling and test for paper and allied products: Part 1 (*revised*).